

**The Use of Radio in Educational Development:  
Where Are We Now?**

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Maurice Imhoof  
Academy for Educational Development, Inc.

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### **ABSTRACT**

Radio has a long and productive history in development, particularly in nonformal education related to other development sectors such as health and agriculture. It has a less convincing history in service to formal education. There are a number of reasons for its mixed performance. In many instances, radio was inadequately planned for and inexpertly used as a medium. In others, it was seen as mere window-dressing for the more substantial content of courses.

Recent projects using radio as the major medium of instruction suggest that a more intensive use of radio results in both better radio and better instruction. Radio's strengths and its cost-effectiveness can be used effectively to meet expanding educational needs in developing countries without a loss in the quality of education.

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### **INTRODUCTION**

During the decade ahead, predicted world economic conditions suggest that educational budgets cannot expand at a sufficient rate to meet swelling student populations. Many Third World nations already commit large percentages of their national budgets to education, but educational leaders are frequently dissatisfied with the results. More efficient, effective and economical methods and media for teaching are required for educational development to occur in the poorest countries.

One proven and cost-effective medium of education that already holds a strong position in many emerging countries is radio. There is an impressive list of radio projects, particularly those that use radio in support of education and other development sectors such as health, agriculture, and family planning. (McAnany 1973; CDC 1976; Jamison & McAnany 1978).

Although successful in many nonformal situations, radio has not always lived up to expectations as an instructional medium. Where it has been used as a substitute for classroom instruction or even as augmentation of classroom instruction, it has often been found lacking and, in many cases, has been abandoned. McAnany (1973) points out a number of instructional radio's constraints and suggests some reasons for the failure of projects to provide convincing evidence of radio's effectiveness. The failures are generally not the fault of radio as a medium, and the interest in radio's potential for instruction in developing countries remains high. This paper examines very

briefly, were we are now with respect to instructional radio and suggests that using radio more intensively would result not only in better radio but in better instruction.

#### **WHAT RADIO DOES WELL**

As a medium, radio has several advantages. It encourages, and perhaps requires, listeners to concentrate their attention and to use their imaginations. One of radio's unique strengths is that it provides a "theater of the mind." In societies in which information is aurally received, radio is a natural extension of this process. This makes it an appealing medium in developing countries where literacy rates are generally low, especially among the rural poor.

Radio has immediacy. It can both convey events immediately, without the time lag resulting from print, and at the same time, it can create the feeling of being there. It can make the listener feel he or she is a part of the action at any time and in any place. Radio seems to require greater mental participation than a purely visual medium does or than television, which is both aural and visual. This is an important feature in education where one attempts to focus and stimulate mental activity.

Radio has a special advantage in countries where there is a strong oral tradition. In a sense, it extends this tradition and incorporates new kinds of information that can be passed along orally. Well-designed educational radio programs can both preserve the oral heritage and develop new traditions by radio. By capitalizing on this oral tradition, a radio-based educational program may make far greater gains than a solely print-based program, especially for adults.

Still another feature of radio is that it can be easily combined with person-to-person communication, visual modes, or both. In American education, other media that have been used to support aural communication have often overwhelmed radio. For example, our fascination with technology has encouraged the rapid development of television and computers for instruction. Where logistical and cost constraints have minimized the use of visual media, radio has proven to be an effective, and sometimes superior, medium.

### **EDUCATIONAL RADIO**

According to Jamison and McAnany (1978), the educational uses of radio fall into three broad categories: improving educational quality and relevance; lowering educational costs; and improving access to education, particularly in rural areas.

#### **Quality and Relevance**

It is the first category which has largely motivated educational broadcasters in the United States. Although the early hopes for educational television were not quickly realized, the expectations were that the use of radio or television would enhance and vitalize teaching. Time was often wasted in developing broadcasts that were improperly or inadequately evaluated or, more disappointingly, proved to be no more effective than traditional classroom teaching. Many early programs were simply broadcasts of traditional classroom lessons, rather than lessons designed to make use of the media's unique qualities. They merely recorded conventional instruction rather than improving the quality of it.

Other attempts to use educational broadcasting made the mistake of concentrating on the medium rather than the audience. Educational campaigns developed for one audience were aired for different audiences with little or no adaptation. But radio materials which do not address the specific orientation and needs of a community do not strengthen educational development. In fact, they may be contrary to it. The radio schools of the Tarahumara of Mexico apparently transferred the primary-school curriculum from the traditional, urban job-oriented school. As a result, the schools unintentionally encouraged the student to leave his or her community for employment opportunities, thus draining the community of its better human resources (Jamison & McAnany 1978).

More recent improvements in the technology, and lower costs for equipment, have brought new creativity to educational materials development, particularly video. A new breed of media specialist is now engaged in the development of video materials that are flexible and dramatic. Inexpensive recording and playback equipment permits students and teachers to take part in the creative process as well as participate more deeply in educational video products made by others. The emphasis is less on sustained, long-term instruction and more on materials which augment the regular classroom instruction in a way that expands the visions of the classroom and strengthens involvement in the subject.

### Costs

Unfortunately, in developed countries the use of radio has declined as the technology and popularity of television have increased. A lack of enthusiasm for educational radio in the United States has not dampened the eagerness to explore the medium for low-income countries, however. The Radio

Mathematics Project in Nicaragua, for example, demonstrated that radio is cost-effective when compared with the only viable alternative--a print-based instructional program (Gonzalez 1980). Well-designed radio lessons can supplement and extend the poorly trained teacher's capabilities. Radio also does this at less cost than either pre-service or in-service teacher training programs to upgrade teachers.

In reviewing the effectiveness of instructional radio, Jamison and McAnany convincingly conclude that "radio, properly used, can teach as well as (or, in some cases, better than) traditional instruction" (1978, p. 31). Drawing on a number of case studies of radio-based education programs, they suggest several important implications for educational development in low-income countries.

Start-up costs for a series of radio lessons are high, especially for an innovative or experimental series. These costs may be evened out by other factors. For example, the larger the audience, and the longer the lessons are used, the more economical the lessons become. An additional factor which reduces the costs is the decreased dependency on paper and printing. Still another factor is how quickly students can master the skills being taught. If students can learn faster, or fewer students fail to advance, it is less costly for the educational system. The Radio Mathematics Project in Nicaragua used radio as the major medium of instruction with little or no dependence on visual equipment, charts, models, or printed worksheets. Evaluation shows that radio instruction not only improved the student's mathematics performance, but reduced the number of students who failed to advance to higher grades (Searle, Suppes, & Friend 1977).

## Access

Radio education can be an effective means of reaching large numbers of students who might otherwise be forgotten. For more than twenty years, the Movement of Basic Education in Brazil has used radio to reach rural students in the more remote areas of the country. Radio schools are equipped with a radio set and students listen to the lessons and apply the knowledge they have gained under the supervision of a monitor. The radio broadcasts are designed to achieve only part of the educational objectives of the Movement of Basic Education, but the use of radio enables the Movement to provide communities with practical information and produce educational activities in which the students are active participants (Speyer 1983).

In Kenya, radio correspondence courses to upgrade teachers demonstrated radio's effectiveness in teaching the prescribed material at a substantially lower cost than traditional instruction. More significantly, it allowed this upgrading to occur without removing teachers from the classroom during a time when the school population was rapidly expanding. The combination of correspondence courses with radio broadcasts after the school day was over permitted wide participation by under-qualified teachers (Kinyanjui 1977).

In the southwestern region of the Dominican Republic there are hundreds of communities containing thousands of children who cannot attend schools because the government cannot afford to build enough schools and train enough teachers (Hanssen, Kozlow & Olsen 1983). In this region, radio is being used to teach basic literacy and numeracy skills to children between seven and fourteen years of age who do not have access to formal schools.



## **INSTRUCTIONAL RADIO**

Although the distinctions are not always clearcut, McAnany makes a distinction between radio used for instruction and radio used for the communication of general information that may lead to development. One way of thinking of it is to see instructional radio in conjunction with or as a substitute for schooling. Other uses of radio for educational purposes might be instruction for a particular development-related task, e.g. health practices, farming techniques, but not as a part of the school curriculum. Still other uses of educational radio might provide general information for improving the quality of life for the entire community.

Of the five strategies for the use of radio in development discussed by McAnany (1973), only one--instructional radio--is related to the formal school system. Instructional radio assumes that students will be able to participate in the necessary activities under the supervision of someone who can give feedback. In some cases this is a classroom teacher within the school system; in others it is a classroom monitor with significantly less training than a regular teacher. In still other instances, feedback may come from a distance, probably through correspondence.

The other major assumption is that the instructional radio course relates to the regular school curriculum, either in support of its conventional presentation in the classroom or as a partial substitute for conventional teaching.

At the time McAnany described the five strategies for use, there were few projects which used radio intensively to present the major curriculum content. He describes most projects as relatively unsophisticated in terms of instruction.

There still seems to be a naive belief in some radio projects that once the medium of radio is selected everything else will take care of itself. The extensive planning that goes into the development of a print-based curriculum--the writing of instructional objectives based on common educational goals of the nation, the sequencing and presentation of instruction, the writing of lesson plans and classroom teaching materials and tests--are assumed important for print materials but are treated rather cavalierly by radio broadcasters. The result is radio that neither instructs nor entertains.

Just as any different philosophy of education requires a different curriculum and methodology of teaching, the choice of radio as a medium requires careful planning and writing by personnel qualified to do this kind of work.

#### **INTENSIVE USE OF RADIO**

Most instructional radio is still of the support type. Radio is apportioned some part of a course syllabus that lends itself to radio presentation, for example by means of dramatization, dialogue, or music. Unfortunately, the radio presentation is seldom viewed as an integral part of the course, but rather as motivational, enhancing, or simply entertaining. In practice it becomes superfluous, not because of its ineffectiveness in presenting instructional material in a substantial and intellectual manner but because of its position in the syllabus; to students and teachers alike it takes on the appearance of being unimportant. Students develop the opinion, sometimes correctly, that they can read in ten minutes what it takes the radio thirty minutes to tell them. In a well-designed program, however, the radio can bring much more to comprehension and memory than a quick reading of material can.

People are generally convinced that radio is effective in nonformal education, but they are not always convinced that it can work in the schools. Many educators in developing countries, especially those with limited media experience, are taking a wait-and-see attitude to instructional radio. Given the high start-up costs of good instructional media programming, this skepticism is good. Additionally, failures in the use of instructional media are generally pointed out as failures of the medium rather than assessing other constraints on its use which may have caused the failure: poor planning, inadequate teacher orientation, irrelevant and unessential materials, inadequate budget and resources, and so on.

The key to more convincing use of radio for instruction may be to take a bolder approach--not to use radio less, but to use it more intensively. Christensen (1983) suggests a more significant approach to instruction may be the intensive use of radio. Rather than a few minutes a week to provide the icing on the cake, radio could be the cake itself. At least two radio projects (as described below) suggest that such intensive instruction can be effective. Still others are being tried out or are in the design stage.

### Radio Math

A well-documented project that reexamined radio's potential as an instructional medium was the Radio Mathematics Project in Nicaragua. The project functioned within the formal primary-school system and followed the existing Nicaraguan mathematics curriculum. It provided complete instruction in mathematics through daily thirty-minute lessons broadcast to children in the first years of primary school. By 1979, Radio Math was clearly a success in the one quarter of the country's school districts where it was being piloted. Significant gains by the radio pupils over the pupils in

conventional classrooms were observed in all schools. Rural pupils made even more significant gains (Friend, Searle, & Suppes 1980).

The Radio Math project, funded by the U.S. Agency for International Development (AID), provided convincing evidence that mathematics, at least, could be taught by radio. The project is currently being tested in Thailand and components of the project have been incorporated in instructional radio projects in the Philippines, Liberia, and the Dominican Republic. In addition, the project raised the possibility of other subject areas of the primary curriculum being taught by radio. Although there was strong faith that they could be, no evidence of sustained, effective teaching by radio of language, science, or other areas of the primary existed.

#### Radio Language Arts

Based on the principles of effective instructional radio and the techniques of instructional design developed in the Radio Math Project, a new project was designed to test the feasibility of teaching English language by radio. This project, also funded by AID, is currently underway in Kenya.

One of the challenges facing Kenya's educational system is providing a common instructional language in a multilanguage environment. English has been chosen as this language. By the fourth grade, children must switch from their mother tongues to English for the remainder of their schooling. This educational environment provided an ideal setting for testing radio's ability to teach English language skills adequately to meet the educational development goals of the country.

The Radio Language Arts Project has completed its first year of broadcasting and is in the final term of grade two. Initial results from the first year show substantial achievement gains and strong support from school

personnel. Pupils at the end of one year of English language instruction by radio have made significant gains over conventional classroom pupils of 25% in reading skills and 50% in listening skills.

The project is scheduled to complete three years of radio lessons. If the cumulative results of three years of instruction by radio for the cohort of pupils are as positive as they are so far, they will have important implications for radio's role in formal education. They will further demonstrate that the Radio Mathematics model is generalizable to other educational environments and to other subject areas as well (Christensen 1983).

#### Radio Basic Education

As a continuation of the educational development strategy initiated with the Radio Math Project, AID has funded another project for primary education--Radioeducativo/Comunitario (RADECO). This project, underway in the Dominican Republic, is attempting to provide basic education through radio to children of primary school age who do not have access to schools. In this instance, children come together in the community under the leadership of a paraprofessional monitor. The radio provides instruction in mathematics, language, and social studies which forms part of the regular classroom curriculum in other parts of the country.

Results are not yet available from the Dominican project. It has only recently begun broadcasting after a lengthy period of community assessment, curriculum planning, staff development and pre-testing of lessons.

The project attempts more complex instructional objectives by radio than either the Radio Math or the Radio Language Arts Projects. It will provide further evidence of the extent to which radio can provide basic education that

will be at least as good as conventional classroom instruction. (This project is further described in a conference paper presented by Jean Meadowcroft entitled "Radio Instruction for Children Without Schools.")

### Radio Science

A new AID funded project developing science education by radio is expected to start next year. Implementation and evaluation of this project will complete a series of planned projects to support primary education in developing countries.

### **CONCLUSION**

The literature on the use of radio in educational development describes a number of nonformal and formal projects which suggest a significant educational role for radio in developing countries. Many of the projects point more to potential than to actual achievement. Lack of achievement is, however, seldom the fault of the medium itself.

With the exception of printed materials, particularly textbooks, radio is the educational medium with perhaps the longest record of service in the Third World.

In part, this is the result of local initiatives in which educational leaders used the technology that was available for development purposes. In other cases, the use of radio has been encouraged by donor agencies in cooperation with local educational leaders. In a recent survey prepared by the Clearinghouse on Development Communication for the U.S. Agency for International Development, more than thirty projects are identified that have used radio in support of development activities (CDC 1983). Typically AID

assistance in communications is directed to facilitating the use of existing communications infrastructures in support of development programs in such areas as education, health, and agriculture. In some cases, radio is the major medium for development communication, in others it plays a support role to augment other strategies. The emphasis on radio as a medium is impressive, however.

The breadth of such experience with radio projects, not only those with AID funding but many with other international donor agencies and Private Voluntary Organizations funding, has been well documented (Spain, Jamison & McAnany 1977; CDC 1977-83).

Instructional radio, however, has had mixed reviews. Often implemented with inadequate planning, preparation, and evaluation, the results have therefore been unconvincing in stimulating further program development. The high costs for start up, usually personnel costs of qualified specialists in instructional systems design, curriculum development, subject matter specialists, instructional radio specialists, including writers and producers, have discouraged large scale experimentation.

Given the high costs of good instructional radio development, skepticism on the part of educational leaders is good. Pilot projects, carefully designed and evaluated and addressing critical educational needs, are the best way of providing evidence of radio's efficiency.

A few such projects are beginning to provide evidence that instructional radio can serve educational development in an effective manner. These projects are demonstrating the cost-effectiveness of radio, improving the quality of education, and providing access to education by previously neglected populations.

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